

REMARKS

The present response is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested.

Claims 1-65 are pending in this case. Claims 7-10, 14-16, 18-22, 29-30, 34-37, 42-43, 45, 47-48, 51-53, 61, 64-65 have been rejected under 35 U.S.C. § 112, first paragraph. Claims 1-4, 11, 17-22, 24-25, 30-33, 36-38, 43-46, 49 have been rejected under 35 U.S.C. § 102(e). Claims 5-10, 12-16, 23, 26-29, 34-35, 39-42, 47-48, 50-62, 64-65 have been rejected under 35 U.S.C. § 103(a). The drawings have been objected to. Independent claims 1, 21, 36, 53 and 63 and dependent claims 2, 14, 25-33, 35, 38-46, 48, 55 and 64 have been amended. Claims 7-10, 15-16, 18-20, 22-23, 50-52, 61-62, 65 have been canceled without prejudice.

With respect to the Examiner's 35 U.S.C. §§ 102(e), 103(a) rejections, Applicant has reviewed the cited art and respectfully submits that the art fails to disclose or suggest the Applicant's claimed invention. Therefore, Applicant respectfully traverses and requests favorable reconsideration.

Response to Drawing Objections

The Examiner has objected to the drawings under 37 CFR 1.83(a). Claims 7-10, 15-16, 18-20, 22-23, 50-52, 61-62, 65 have been canceled. Claims 36, 53 have been amended to overcome this objection. Regarding the equalizer (e.g., claims 29, 42), optical switch mechanism (e.g., claims 30, 43), switch means (e.g., claims 32, 45), means for reducing cross talk (e.g., claims 34, 47) and gain setting means (e.g., claims 35, 48), Applicants submit that these features of the invention are shown in the drawings. Specifically, these features are shown in Figure 8 and described in detail in the specification on page 14, line 26 through page 16, line 23.

The Examiner has objected to the drawings as failing to comply with 37 CFR 1.84(p)(5) because they do not include reference signs mentioned in the description. The specification and Figure 8 have been amended to overcome this objection. No new matter has been added.

The Examiner has objected to the drawings as failing to comply with 37 CFR 1.84(p)(4) because a reference numeral was used to designate two entities. The specification has been amended to overcome this objection. No new matter has been added.

Response to Objection to the Specification

The Examiner objected to the disclosure because of several informalities. Applicants have amended the specification to correct these typographical errors. No new matter has been added.

Response to Claim Objections

The Examiner objected to claims 64 and 65 because of informalities. Claim 64 has been amended to correct the typographical error and claim 65 has been canceled.

Response to 35 U.S.C. § 112, First Paragraph Rejections

The Examiner rejected claims 7-10, 14-16, 18-22, 29-30, 34-37, 42-43, 45, 47-48, 51-53, 61, 64-65 under 35 U.S.C. § 112, first paragraph, as reciting limitations merely hinted as possible modifications to the present invention while the specification fails to provide adequate circuitry or structure diagrams for the hinted modifications.

Applicants have canceled claims 7-10, 15-16, 18-20, 22-23, 50-52, 61-62, 65 without prejudice. Regarding claim 14, an optical network terminator wherein the network employs dense wavelength division multiplexing is shown in Figure 5 and described in the specification on page 12. The term 'dense' WDM refers to the number of individual wavelengths and their spacing. Regarding claims 21, 36 and 53, they have been amended to overcome the § 112, first paragraph rejection. Regarding claims 29-30, 34-35, 42-43, 45, 47-48, they are shown in Figure 8 and described in the specification on page 14, line 26 through page 16, line 23. Regarding claim 37, this feature is shown Figure 6 wherein the demultiplexer 88 generates M output channels 90, each corresponding to a different wavelength. Claim 64 has been amended to overcome the § 112, first paragraph rejection.

Applicant believes that amended claims 14, 21, 29-30, 34-37, 42-43, 45, 47-48, 53 and 64 overcome the Examiner's rejection based on § 112, first paragraph grounds. The Examiner is respectfully requested to withdraw the § 112, first paragraph rejection.

Response to 35 U.S.C. § 102(e) Rejections

The Examiner rejected claims 1-4, 11, 17-20 and 63 under 35 U.S.C. § 102(e), as being anticipated by U.S. Patent No. 6,356,386 to Denkin et al. (hereinafter Denkin).

While continuing to traverse the Examiner's rejections, Applicant, in order to expedite the prosecution, has chosen to clarify and emphasize the crucial distinctions between the present invention and the devices of the patents cited by the Examiner. Specifically, claim 1 has been amended to include a method of optical network termination for removing accumulated noise in an

optical network having one or more channels, the method comprising the steps of receiving one or more input optical signals transmitted over the one or more channels of the optical network, each channel potentially corrupted with accumulated noise, filtering the one or more input optical signals so as to remove accumulated noise and outputting the output optical signal onto the one or more channels on the optical network.

Denkin teaches an apparatus and method for controlling response to power transients in an optically amplified wavelength division multiplexed (WDM) network when WDM optical channels are added and dropped, during network reconfigurations, during failure events, etc.

The variable bandwidth filter circuit 500 of Figure 4 of Denkin functions to filter the output of the monitor circuit 426. The output of the filter 500, however, is not output back out to the network but rather is used in controlling the pump source 428 input to the control the gain of the optical amplifier 425.

In contrast, the present invention is operative to place the filtered optical signal back into the ring network. This feature is neither taught nor suggested by Denkin. Applicant therefore believes that independent claims 1 and 63 overcome the Examiner's rejection based on § 102(e) grounds.

Because Denkin does not anticipate or suggest claims 1 and 63 as discussed above, then claims 2-4, 11, 17-20 are allowable as well. The Examiner is respectfully requested to withdraw the § 102(e) rejection.

The Examiner rejected claims 21, 22, 24-25, 30-33, 36-38, 43-46 and 49 under 35 U.S.C. § 102(c), as being anticipated by U.S. Patent No. 6,549,314 to Yamaguchi.

Yamaguchi teaches an optical control apparatus having an optical reflector for selectively reflecting signal light having a specific wavelength, transmitting and outputting signal light having another wavelength and a saturable absorber for transmitting an outputting the transmitted signal light when an output level of the transmitted signal light is equal to or larger than a predetermined threshold value.

While continuing to traverse the Examiner's rejections, Applicant, in order to expedite the prosecution, has chosen to clarify and emphasize the crucial distinctions between the present invention and the devices of the patents cited by the Examiner. Specifically, claim 1 has been amended to include an optical network terminator for removing accumulated noise in an optical network comprising an optical demultiplexer operative to demultiplex each the input multi-channel optical signal into a plurality of individual optical channels, each the optical channel having a unique wavelength and an optical multiplexer operative to multiplex the plurality of individual optical

channels to generate one or more output multi-channel optical signals wherein accumulated noise present at the input to the optical demultiplexer is substantially removed.

The optical transmission apparatus shown in Figure 3 of Yamaguchi comprises an add/drop multiplexer for dropping and adding channels of light having different wavelengths.

In contrast, the present invention comprises an optical demultiplexer whose channel outputs are coupled to an optical multiplexer whereby the accumulated noise present at the input to the optical demultiplexer is removed. This feature is neither taught nor suggested by Yamaguchi. Applicant therefore believes that independent claims 21 and 36 overcome the Examiner's rejection based on § 102(e) grounds.

Because Yamaguchi does not anticipate or suggest claims 21 and 36 as discussed above, then claims 22, 24-25, 30-33, 37-38, 43-46 and 49 are allowable as well. The Examiner is respectfully requested to withdraw the § 102(e) rejection.

Response to 35 U.S.C. § 103(a) Rejections

The Examiner rejected claims 5-6 under 35 U.S.C. § 103(a) as being unpatentable over Denkin in view of U.S. Patent No. 6,519,060 to Lui. Because Denkin does not anticipate or suggest claim 1 as discussed above, then claims 5-6 are allowable as well. The Applicant respectfully traverses the objections of claims 5-6 and submits that the presently claimed invention is patently distinct over Denkin in view of Lui.

The Examiner rejected claims 7, 9 and 12 under 35 U.S.C. § 103(a) as being unpatentable over Denkin in view of U.S. Patent No. 6,359,726 to Onaka et al. (hereinafter Onaka). Claims 7 and 9 have been canceled without prejudice. Because Denkin does not anticipate or suggest claim 1 as discussed above, then claim 12 is allowable as well. The Applicant respectfully traverses the objections of claim 12 and submits that the presently claimed invention is patently distinct over Denkin in view of Onaka.

The Examiner rejected claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Denkin in view of U.S. Patent No. 5,986,800 to Kosaka. Claim 8 has been canceled without prejudice.

The Examiner rejected claim 10 under 35 U.S.C. § 103(a) as being unpatentable over Denkin in view of U.S. Patent No. 6,466,348 to Izumi. Claim 10 has been canceled without prejudice.

The Examiner rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Denkin in view of U.S. Patent No. 6,262,835 to Kosaka et al. (hereinafter Kosaka). Because Denkin does not anticipate or suggest claim 1 as discussed above, then claim 13 is allowable as well. The

Applicant respectfully traverses the objections of claim 13 and submits that the presently claimed invention is patently distinct over Denkin in view of Kosaka.

The Examiner rejected claims 14-15, 61 and 64 under 35 U.S.C. § 103(a) as being unpatentable over Denkin in view of U.S. Patent No. 6,344,910 to Cao. Claims 15 and 61 have been canceled without prejudice. Because Denkin does not anticipate or suggest claim 1 as discussed above, then claims 15 and 64 are allowable as well. The Applicant respectfully traverses the objections of claims 15 and 64 and submits that the presently claimed invention is patently distinct over Denkin in view of Cao.

The Examiner rejected claims 16, 62 and 65 under 35 U.S.C. § 103(a) as being unpatentable over Denkin in view of U.S. Patent No. 6,321,003 to Kner et al. (hereinafter Kner). Claims 16, 62 and 65 have been canceled without prejudice.

The Examiner rejected claim 23 under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of U.S. Patent No. 6,466,348 to Izumi. Claim 23 has been canceled without prejudice.

The Examiner rejected claims 29, 35, 42 and 48 under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of U.S. Patent No. 6,646,795 to Jones et al. (hereinafter Jones). Because Yamaguchi does not anticipate or suggest claims 21 and 36 as discussed above, then claims 29, 35, 42 and 48 are allowable as well. The Applicant respectfully traverses the objections of claims 29, 35, 42 and 48 and submits that the presently claimed invention is patently distinct over Yamaguchi in view of Jones.

The Examiner rejected claims 26-27, 34, 39-40 and 47 under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of U.S. Patent No. 6,519,060 to Liu. Because Yamaguchi does not anticipate or suggest claims 21 and 36 as discussed above, then claims 26-27, 34, 39-40 and 47 are allowable as well. The Applicant respectfully traverses the objections of claims 26-27, 34, 39-40 and 47 and submits that the presently claimed invention is patently distinct over Yamaguchi in view of Liu.

The Examiner rejected claims 28, 41, 53, 58 and 60 under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of U.S. Patent No. 6,594,046 to Nishino. Because Yamaguchi does not anticipate or suggest claims 21 and 36 as discussed above, then claims 28 and 41 are allowable as well. The Applicant respectfully traverses the objections of claims 28 and 41 and submits that the presently claimed invention is patently distinct over Yamaguchi in view of Nishino.

Regarding claim 53, while continuing to traverse the Examiner's rejections, Applicant, in order to expedite the prosecution, has chosen to clarify and emphasize the crucial distinctions

between the present invention and the devices of the patents cited by the Examiner. Specifically, claim 1 has been amended to include an optical ring network comprising a plurality of nodes situated around the optical ring, wherein a portion of the nodes employs one or more optical amplifiers, an optical network terminator for removing accumulated noise in the optical ring network, wherein the optical network terminator comprises an optical demultiplexer operative to demultiplex an input multi-channel optical signal into a plurality of individual optical channels, each the optical channel having a unique wavelength, a plurality of optical attenuators, each optical attenuator coupled in-line to an individual optical channel, the optical attenuator operative to vary the optical gain of an optical signal, a plurality of monitors, each monitor coupled in-line to an individual optical channel, the monitor operative to measure the optical power of an optical signal and an optical multiplexer operative to multiplex the plurality of individual optical channels so as to generate an output multi-channel optical signal wherein accumulated noise present at the input to the optical demultiplexer is substantially removed.

Nishino teaches a level-flattening circuit for WDM optical signals which can be used in an optical signal repeating station.

In contrast, the present invention comprises an optical demultiplexer whose channel outputs are coupled to an optical multiplexer whereby the accumulated noise present at the input to the optical demultiplexer is removed. This feature is neither taught nor suggested by the combination of Yamaguchi and Nishino. Applicant therefore believes that independent claim 53 overcomes the Examiner's rejection based on § 103(a) grounds.

Claims 58 and 60 depend from claim 53. Accordingly, Applicants also submit that claims 58 and 60 are not obvious in light of the combination of Yamaguchi and Nishino. The Applicants respectfully traverse the rejection of claims 58 and 60 and submit that the presently claimed invention is patently distinct over Yamaguchi in view of Nishino. The Examiner is respectfully requested to withdraw the rejection based on 35 U.S.C. § 103(a).

The Examiner rejected claim 50 and 52 under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of Denkin. Claims 50 and 52 has been canceled without prejudice.

The Examiner rejected claims 54-55 under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of Denkin and further in view of Liu. Since the combination of Yamaguchi and Nishino does not anticipate or suggest claim 53 as discussed above, then claims 54-55 are allowable as well. The Applicant respectfully traverses the objections of claims 54-55 and submits that the presently claimed invention is patently distinct over Yamaguchi in view of Denkin in further view of Liu.

The Examiner rejected claims 56-57 under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of Nishino and further in view of Liu. Since the combination of Yamaguchi and Nishino does not anticipate or suggest claim 53 as discussed above, then claims 56-57 are allowable as well. The Applicant respectfully traverses the objections of claims 56-57 and submits that the presently claimed invention is patently distinct over Yamaguchi in view of Nishino in further view of Liu.

The Examiner rejected claim 59 under 35 U.S.C. § 103(a) as being unpatentable over Yamaguchi in view of Nishino and further in view of Jones. Since the combination of Yamaguchi and Nishino does not anticipate or suggest claim 53 as discussed above, then claim 59 is allowable as well. The Applicant respectfully traverses the objections of claim 59 and submits that the presently claimed invention is patently distinct over Yamaguchi in view of Nishino in further view of Jones.

Correction of Typographical Errors

Amendments have been made to correct grammatical and usage errors in the specification. No new matter has been added to the application by these amendments.

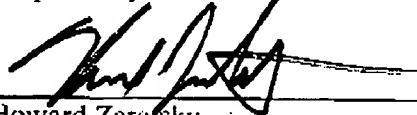
Conclusion

In view of the above amendments and remarks, it is respectfully submitted that independent claims 1, 21, 36, 53 and 63 and hence dependent claims 2-6, 11-14, 17, 24-35, 37-49, 54-60, 64 are now in condition for allowance. Prompt notice of allowance is respectfully solicited.

In light of the Amendments and the arguments set forth above, Applicants earnestly believe that they are entitled to a letters patent, and respectively solicit the Examiner to expedite prosecution of this patent applications to issuance. Should the Examiner have any questions, the Examiner is encouraged to telephone the undersigned.

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Respectfully submitted,



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